Eur J Vasc Endovasc Surg **25**, 590–591 (2003)
doi:10.1053/ejvs.2002.1844, available online at http://www.sciencedirect.com on SCIENCE DIRECT®

CASE REPORT

A Ruptured Aneurysm of Superior Mesenteric Artery to Duodenum and Reconstruction with Saphenous Vein Graft

M. A. Tolga Muftuoglu*, A. Aktekin, G. Gurleyik and A. Saglam

The Fourth General Surgical Department of Haydarpasa Numune Teaching & Training Hospital Uskudar, Istanbul, Turkey

Key Words: Aneurysm; Superior mesenteric artery.

Introduction

Aneurysms of major branches of abdominal aorta are one of the challenging problems in vascular surgery. Aneurysm of visceral arteries are uncommon. Aneurysms of hepatic and splenic arteries account 80% of the visceral aneurysms. Aneurysm of superior mesenteric artery (SMA) is very rare. SMA aneurysms are 5.5% of the visceral aneurysms. Nearly 22% of patients were emergency cases and 8.5% of them died of this disease. The mortality of aneurysm of SMA is 40–60%. Definitive diagnosis is achieved by angiography and sometimes by computed tomography. Treatment of aneurysm of SMA demands on restoration of arterial continuity. Treatment of choice is obliteration of aneurysms and reconstruction of artery.[1]

Report

A 45-year-old male was referred to our clinic because of colicy abdominal pain not responding to analgesics. It was not related to food intake and diarrhea and constipation did not accompany his pain. He also had lost about 7 kg. He had no cardiac problems and no intravenous drug abuse. He had an operation on carotid artery aneurysm 2 years ago. He has a pulsating mass on physical abdominal examination. A $69 \times 54 \times 54$ mm aneurysm was recognized during abdominal ultrasonography. His abdominal computed tomography showed aneurysmatic dilatation $7 \times 5 \times 6$ cm in size. On angiography, 2 cm distal to SMA origin, an aneurysm in 6.5×5.8 cm in size was seen (Fig. 1). When he was in elective operation list, he suddenly suffered from a massive upper

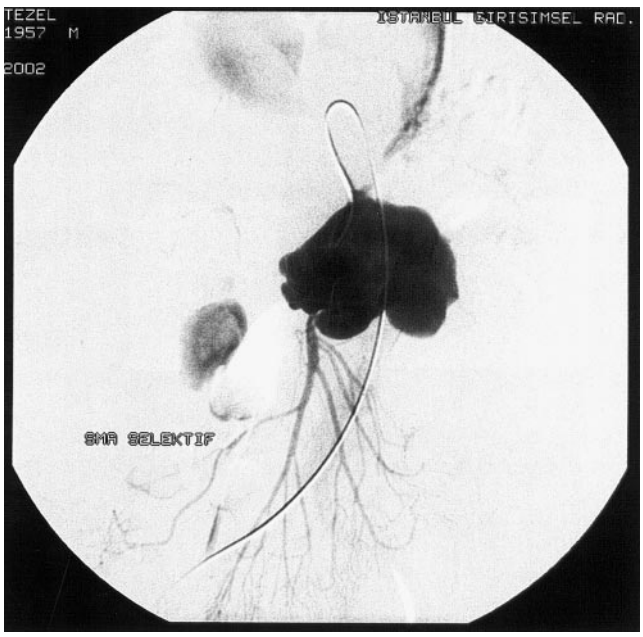

Fig. 1. Angiography of patient showing an aneurysm in 6.5×5.8 cm in size 2 cm distal to SMA origin in preoperative period.

* Please address all correspondence to: M. A. Tolga Muftuoglu, Mustafa Mazhar Bey Sok. 11/3, Onalanlar Ap. 80300, Selamicesme, Kadikoy, Istanbul, Turkey.

1078–5884/03/060590 + 02 $35.00/0

Fig. 2. Angiography of patient showing branches of SMA distal to patent grafted saphenous vein.

gastrointestinal bleeding during his stay in the ward. He was immediately taken to emergency operation room with a diagnosis of ruptured aneurysm of superior mesenteric artery. First, left thoracotomy was done and thoracic Aorta was clamped for 50 min for control of hemorrhage. At midline laparotomy, stomach and small bowel full of blood and $7 \times 6 \times 5$ cm aneurysm was found at origin of SMA. It is found that aneurysm had a connection to forth portion of duodenum. The proximal connections of aneurysm to SMA were suture ligated with 3/0 polypropylene. Aneurysm and duodenum were cleaned from devitalized tissue and duodenum was closed with 4/0 polypropylene suture. The distal end of aneurysm was suture ligated with 3/0 polypropylene suture and cut from SMA. The clamp on thoracic Aorta was released. A segment of the right saphenous vein 10 cm in length was taken from the right groin and anastomosed to aorta (end to side) to and SMA (end to end), in order to reconstruct SMA continuity. Six units of blood and four units of fresh frozen plasma were given to patient. He had infected drainage from left thoracic cavity responding to antibiotics and drainage. He was discharged from hospital on ninth postoperative day. Salicylate 100 mg/day and dispiryl 900 mg/day were given to patient for three months. The angiograhy was taken on 23 days after operation and reconstructed saphenous vein was found patent (Fig. 2).

Discussion

Aneurysms of splanchnic arteries are relatively rare but, It can be incidentally diagnosed with extensive use of high resolution computed tomography, magnetic resonance angiography, developed ultrasonography and angiography. It can rupture into abdomen and retroperitoneum but develop fistula to intestine and cause massive gastrointestinal tract bleeding. If it ruptures, it carries 50% mortality risk.[1] Aneurysms can be treated as ligation, excision, aneurismoraphy and excision and graft placement together.[2]

Aneurysmorphy and simple ligation were the most used treatment modalities. If the collateral of inferior pancreoticoduodenal and middle colic arteries are enough, previous methods will be successful.[1] It is very dangerous to excise the aneurysms of SMA due to its close relation to superior mesenteric vein and pancreas. Endoaneurysmorphy can be used as in this case. McClelland and Duke first defined endoaneurysmorphy.[2] In our patient, because of its huge size and adherence to surrounding tissues, the aneurysm was not possible to excise. It is very interesting that most reported surgical treatment modality is SMA ligation of aneurysm and aneurysmoraphy.[1,2] After excision of aneurysm, aorta-mesenteric reconstruction or bypass can be made. In our case we used saphenous vein graft.

Zeybek *et al*. reported a patient with recurrent upper intestinal bleeding due to SMA aneurysm rupture and its reconstruction with saphenous vein successfully.[3] Surgical mortality of SMA aneurysm is reported as 15% in literature.

Most important feature of our case; An aneurysm of SMA was diagnosed before emergency operation. A massive upper gastrointestinal tract bleeding was occurred while he was waiting the elective operation. Endoaneurysmorphy and reconstruction with saphenous vein was performed successfully in emergency operation.

References

1 Zelenock GB, Stanley JC. Splanchnic artery aneurysms. In: Rutherford RB, ed. *Vascular Surgery.* Fifth edn. Philadelphia: Saunders, 2000; 1369–1382.
2 Olcott C, Ehrenfeld WK. Endoaneurysmorphy for visceral artery aneurysms. *Am J Surg* 1977; **133**: 636–801.
3 Zeybek N, Tas H, Kaymakçioğlu N, Çetiner S, zal E, Sen D. Gastrointestinal hemorrhage due to traumatic superior mesenteric artery aneurysm. *Ulus Travma Derg* 2001; **7**: 274–276.